PILE DESIGN AND DETAILING CHECKLIST

Name of Project: Input data
Name of Structure: Input data
Structure Number: Input data
Project Number: Input data
PIN: Input data

Originator: Input name and initials Date: _____
Checker: Input name and initials Date: _____

TITLE BLOCK	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Complete all information required in the standard title. • Top line = project name • Second line = structure name • Third line = sheet name					
Complete the title block.					
Fill in initials, dates, and signatures.					

DESIGN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
In this document, pile, refers to any deep foundation element.					
Meet the requirements of AASHTO LRFD and the UDOT Structures Design and Detailing Manual(SDDM).					
Verify design axial pile capacity limits match the values in the completed geotechnical report.					
Verify design lateral pile capacity limits match the values in the completed geotechnical report.					
Provide sacrificial steel to account for corrosion.					
Verify pile design material size and strength match the values in the completed geotechnical report.					
Apply all superstructure loads to the piles.					
Apply approach slab loads to the abutment piles. Do not apply a live load surcharge behind the abutment.					
Check longitudinal thermal movement and loading due to movement.					
Check lateral thermal movement and loading due to movement.					
Verify the pile loading and movement does not exceed the pile capacity.					
Verify that pile geometry is compatible with adjacent structures, walls and utilities.					
Check EQ displacements and loads.					
Include soil loads over footing in design.					
Verify that the pile design includes column plastic hinging loads or appropriate elastic EQ loads.					
Check interaction with walls or other structures.					
Include liquefaction effects in extreme event pile capacity.					
Include scour effects in extreme event pile capacity.					
Do not batter piles.					
Allow 6" of construction tolerance in pile or drilled shaft details. Pay reductions apply to piles greater than 6" from the design location and piles are rejected if greater than 12" from the design location.					

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SHEET	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Use the working standard sheet.					
Revise reinforcing lengths and sizes as required by design.					
List pile diameter, pile wall thickness and pile material properties.					
Provide a minimum pile wall thickness of 3/8".					
Complete the pile capacity tables.					
Complete the quantity table.					
Complete the required notes and update notes as required.					

PILE SLEEVE DETAIL	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Provide a pile sleeve detail when required by design.					
Include the size, length, and material properties of the pile sleeve.					
Identify the material between the top of sleeve and the abutment.					
Indicate if the pile sleeve is backfilled and list the backfill material.					

PILE DATA	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Use the tables provided on the working standard. Only modify tables to add or subtract support locations.					
List NA in columns requesting data that is not applicable to the bridge.					
Provide γ factors used in the design.					

NOTES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Use the notes provided on the working standard.					
Complete the required notes and update notes as required.					
The material properties listed in the notes are typical. UDOT allows use of higher strength concrete and other grades of steel.					

PILE DESIGN AND DETAILING CHECKLIST

LOCATION	PILE SIZE	NUMBER	MIN DRIVING RESISTANCE	EST TIP ELEV	MIN TIP ELEV	SCOUR ELEVATION	EST PILE LENGTH
ABUTMENT #1	X	XX	XXX.X	XXXX.X	XXXX.X	XXXX.X	XX.X
BENT #2	X	XX	XXX.X	XXXX.X	XXXX.X	XXXX.X	XX.X
ABUTMENT #3	X	XX	XXX.X	XXXX.X	XXXX.X	XXXX.X	XX.X

LOCATION	DC+DW $\gamma = 1.25$	EH $\gamma = 1.XX$	DD $\gamma = 1.XX$	LL $\gamma = 1.75$	UPLIFT	EQ HORZ $\gamma = 1.0$	EQ VERT $\gamma = 1.0$	EQ UPLIFT $\gamma = 1.0$	WA $\gamma = 1.0$
ABUTMENT #1	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
BENT #2	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
ABUTMENT #3	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

LOCATION	Q_{ULT}	Q_R $\phi = 0.XX$	$Q_{LATERAL*}$ $\phi = 0.XX$	Q_{SCOUR} $\phi = 0.XX$	Q_{EQ} $\phi = 0.XX$	$Q_{EQ\ LATERAL}$ $\phi = 0.XX$	$Q_{EQ\ UPLIFT}$ $\phi = 0.XX$	Q_{UPLIFT} $\phi = 0.XX$	Q_{DL}	$Q_{SERVICE**}$
ABUTMENT #1	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
BENT #2	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
ABUTMENT #3	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

* LATERAL DISPLACEMENT = X.XX INCHES
** SETTLEMENT $\leq$ 1.00 INCHES

Sample pile size callouts include:

HP 14X89. Use for an HP 14X89 pile.
12" X 1/2". Use for a nominal 12" diameter pile with a 1/2" wall thickness.

Definitions:

Q_{ULT}	=	Nominal ultimate axial geotechnical capacity of the pile.
Q_R	=	Factored axial geotechnical capacity of the pile, using the ϕ factor listed.
$Q_{LATERAL}$	=	Factored lateral geotechnical capacity of the pile at the displacement listed, using the ϕ factor listed.
Q_{SCOUR}	=	Factored axial geotechnical capacity of the pile assuming the scour depth defined by the design flood, using the ϕ factor listed.
Q_{EQ}	=	Factored axial geotechnical capacity of the pile during a seismic event, using the ϕ factor listed.
$Q_{EQ\ LATERAL}$	=	Factored lateral geotechnical capacity of the pile during a seismic event, using the ϕ factor listed.
$Q_{EQ\ UPLIFT}$	=	Factored axial tension geotechnical capacity of the pile during a seismic event, using the ϕ factor listed.
Q_{UPLIFT}	=	Factored axial tension geotechnical capacity of the pile, using the ϕ factor listed.
Q_{DL}	=	Service dead load capacity of the pile considering drag loads. Set at the structural pile capacity minus the maximum drag load.
$Q_{SERVICE}$	=	Service load capacity required to limit settlement to 1 inch.